Occurrence of orange roughy, *Hoplostethus atlanticus* (Trachichthyidae) off Argentina

by

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RÉSUMÉ. - Présence de l'hoplostète orange, *Hoplostethus atlanticus* (Trachichthyidae), en Argentine.

Un spécimen d'hoplostète orange, *Hoplostethus atlanticus* Collett, 1889, a été capturé dans les eaux de l'Argentine. C'est le premier signalement de cette espèce dans l'Atlantique sud occidental. Il a été capturé par 54°38'S-61°58'W sur le talus du banc Burdwood, à une profondeur de 830 m à 855 m. Le banc Burdwood est un mont sous-marin de 210 m de long et de 60 m de large et d'une profondeur moyenne de 130 m, la profondeur minimum est de 46 m ; il est situé à l'ouest du North Scotia Ridge. La température de l'eau dans cette région est de 4,5° à 5°C ; la salinité varie entre 34,1 et 34,2‰. Cette présence de l'hoplostète orange serait la limite sud de sa distribution dans l'Atlantique sud-ouest.

Key words. - Trachichthyidae - *Hoplostethus atlanticus* - ASW - Argentina - Burdwood Bank - New record.

The orange roughy *Hoplostethus atlanticus* Collett, 1889, is a widespread trachichthyid species typically inhabiting deep-waters of the continental slope, seamounts and oceanic ridges. It is considered a highly valuable commercial species, exhibiting life history characteristics markedly different from most shelf species (long life span, slow growth rate, late age at maturity and low fecundity) (Koslow *et al*., 2000), which make them highly susceptible to overfishing. There is only one, unconfirmed record, lacking specific catch locality information, from the southwest Atlantic (Prenski and Almeida, 2000). This constitutes therefore the first documented report of the species in the south-west Atlantic.

The specimen of *H. atlanticus* described here was a female (Fig. 1) caught incidentally by the F/V Vieirasa Once using a bottom trawl net with 120 mm mesh size at codend at 54°38'S and 61°58'W, in the Argentine EEZ, on the southwest slope of the Burdwood Bank at depths between 830-855 m (initial and final depth of the tow) on 11 August 2003. The specimen was frozen and sent to the Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP) for identification before being fixed in 10% formaldehyde solution and transferred to 75% industrial ethylated spirits for long-term preservation. It was identified using the key of Paulin *et al.* (1989) for New Zealand fishes and housed in the fish collection as INIDEP 762. The specimen was easily distinguishable by the presence of a prominent spine in the preopercle and spine in the pelvic fin, the number of spiny and soft rays in the dorsal and anal fins and the presence of enlarged lateral lines scales. Morphometric and meristic data are given in table I. Other fish species caught in the same tow were *Dissostichus eleginoides, Caelorinchus fasciatus* (Iwamoto and Anderson, 1994) and the cephalopod *Moroteuthis ingens*. Bottom temperature was not recorded in the tow, but data

Figure 1. - *Hoplostethus atlanticus* (TL = 325 mm) caught in the south west Atlantic. The caudal peduncle was injured as the fish was frozen. Scale bar = 5 cm. *[*Hoplostethus atlanticus *(LT = 32 mm) capturé en Atlantique sud occidental. Le pédoncule caudal a été abîmé quand le poisson a été congelé. Échelle = 5 cm.]*

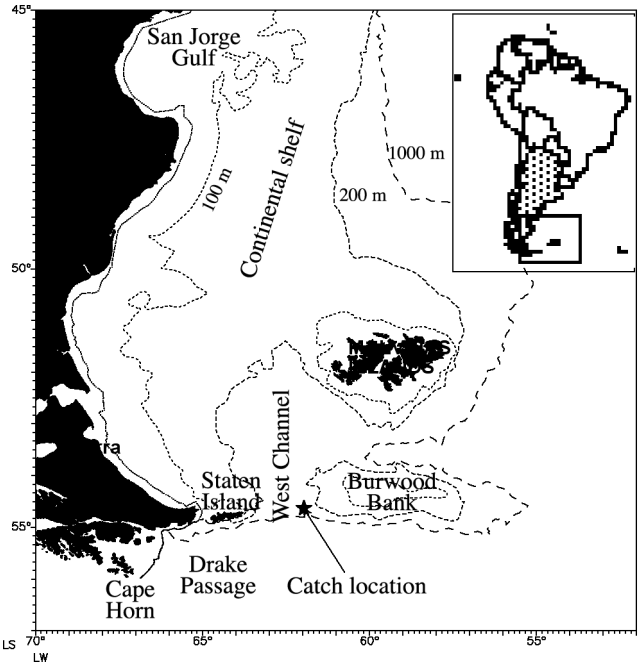

Figure 2. - Catch location of orange roughy and main bottom features of the South Western Atlantic. *[Zone de capture de l'hoplostète orange et principales caractéristiques du fond de l'Atlantique sud occidental.]*

from oceanographic surveys carried out in the area at the same time throughout different years indicated that temperature may vary between 4.5°C and 5°C and salinity between 34.1 and 34.2‰ at

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Table I. - Morphometric and meristic characters of the orange roughy (*Hoplostethus atlanticus*) caught in Argentine waters. *[Caractères morphométriques et méristiques du spécimen de* Hoplostethus atlanticus *capturé dans les eaux argentines.]*

Type	Character	Unit
Morphometric	Total length(TL)	325 mm
	Standard length(SL)	285 mm
	Head length (HL)	97.1 mm
	Upper mandible length	62.72% HL
	Eye diameter	22.86% HL
	Interorbitary distance	39.55% HL
	Postorbitary distance	52.94% HL
	Snout length	29.15% HL
	Maximum body width	38.92% SL
	Preorbitary distance	9.16% SL
	Prepectoral distance	32.95% SL
	Preventral distance	38.36% SL
	Preanal distance	61.93% SL
	Dorsal fin base	36.95% SL
	Anal fin base	16.60% SL
	Pectoral fin base	6.49% SL
	Dorsal fin height	9.61% SL
	Pectoral fin length	23.09% SL
	Pelvic fin length	18.32% SL
Meristic	Dorsal fin ray count	V/15
	Pectoral fin ray count	19
	Anal fin ray count	III/10
	Abdominal scutes	18

depths of 500 m (Guerrero *et al*., 1999). There is no temperature or salinity stratification in the water column in winter in this area.

The channel between Isla de los Estados and the Burdwood Bank is an important fishing ground for Patagonian toothfish (*Dissostichus eleginoides*) and southern blue whiting (*Micromesistius australis*), both important resources for the Argentine fleet. The Burdwood Bank is a large seamount 210 m long and 60 m wide with a mean depth of 130 m and a minimum depth of 46 m in the top, located at the west end of the North Scotia Ridge (Fig. 2).

Lorance *et al*. (2002) indicated that orange roughy aggregations may be better understood when hydrographic and geographic features are considered altogether, postulating a possible relationship of the species with hydrographic fronts and areas affected by turbulence mixing processes of water masses. The Burdwood Bank is limited to the west and to the east by the west and east channels respectively. Both channels are the passageway for the Malvinas Current that drives Antarctic Intermediate Water northwards in the upper 800 m (Piola and Gordon, 1989). In this area mixing processes of water column and turbulence are relevant.

The occurrence of orange roughy in this area may be related to the southern boundary of the distribution of the species in the southwest Pacific. Young *et al*. (2000) reported incidental catches of orange roughy by the Chilean fleet in the southern waters off Chile, where salinity and bottom temperature conditions are similar. In general, temperature and salinity conditions corresponding to the present record are similar to those found in Namibia (Branch, 2001). Suitable temperatures for large catch of the species, recorded worldwide as 4.5ºC-6.5ºC, are found within this sector at depths from 500 to 1500 m (Buscaglia, 1971), and it is therefore within this depth range where orange roughy catches may appear in Argentina. This area is not heavily explored by Argentine commercial bottom trawlers, but visited by vessels dedicated to Patagonian toothfish catch. The hypothesis that occurrence of this species is incidental within this zone may not be discarded according to the low catch incidence. Special attention to catch logs from this area is needed in order to elucidate this question.

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